II.—*On some Lizards from Sind, with Descriptions of new Species of* Ptyodactylus, Stenodactylus, *and* Trapelus.—*By* W. T. Blanford, *F. R. S.*

(Recd. November 8;—Read December 1, 1875.)

(With Plates I and II).

A collection of reptiles which I made in Western Sind in the months of January, February, March, and April, 1875, comprises several species not noticed in the province by previous observers. Five lizards are new to the fauna of India, and three of these have not, so far as I can ascertain, been previously described. Two of the three represent genera of *Geckotidæ* not hitherto detected so far to the eastward: indeed, it is doubtful if either of the two has before been found in Asia.

The only additions to our knowledge of the herpetology of Sind made since the publication of Dr. Günther's great work on Indian Reptiles, are contained in papers by Dr. Günther and Dr. Stoliczka. The former described (P. Z. S., 1869, p. 500) some specimens collected by Dr. Leith, and the latter (P. A. S. B., 1872, p. 124) gave an account of a collection made by Dr. Day.

I am obliged to refer occasionally in these notes to my hitherto unpublished work on the zoology of Persia. This has been more than a twelve month in type and I hope it will appear before this paper.

Fam. *GECKOTIDÆ.*

1. Hemidactylus Coctæi.

Not common; obtained also by Day.

2. Hemidactylus maculatus.

This is not common in Sind, I think. I have only one specimen, the exact locality of which I have omitted to note.

3. Hemidactylus Persicus.

Anderson, P. Z. S., 1872, p. 378.—W. Blanf., Zoology of Persia, p. 342.

This species is close to the common and well known *H. maculatus*, but is rather stouter. Head above granular, supraorbital region sunk. Granules on snout larger than on occiput. Upper labials about 11 or 12, lower 9 or 10, but as usual the small hinder ones vary in number. Back with numerous trihedral tubercles, not very regularly arranged, about 14 or 15 being to be counted across the back, none of them equal to the ear-opening in size. Cross bands of small pointed tubercles on the upper part of the tail, none of them as large as those in the middle of the back, and none of them coming to the lower portion of the tail at the side; they are confined to the

upper portion, and do not extend half way round the tail; lower surface of tail with a row of broad subcaudals. About 35 to 40 scales across the abdomen; 8 to 10 pores in males, forming a short row with an anteriorly salient obtuse angle in the middle across the præanal region, and not continued on to the thighs.

Colour uniformly greyish white. The largest specimen obtained measures 5·8 inches, of which the tail is 3·2.

I obtained 4 specimens of this species, which at the time I took for a large pale variety of the common *H. maculatus*, in a house near Rohri, with specimens of *H. Coctæi*. It is probable that *H. Persicus* partially or entirely replaces *H. maculatus* further to the west. I have compared the specimens obtained with the type described by Dr. Anderson.

This species is distinguished from *H. maculatus* by having the tubercles on the tail smaller than on the back instead of larger, by their not extending so low down on the sides of the tail, and by there being no femoral pores, but only a short row of pores in the præanal region. In *H. maculatus* there are usually from 20 to 30 pores altogether, in *H. Persicus* 8 or 10 only.

4. Ptyodactylus homolepis, sp. nov.

P. affinis P. Hasselquisti, *a quo differt squamis dorsalibus omnibus parvulis subæqualibus, naribus a scuto rostrali disjunctis, et colore griseo, fasciis latis undulatis transversis fuscioribus variato.*

Hab.—*In montibus Khirthar dictis ad fines occidentales provinciæ Indicæ Sind dictæ.*

Description.—The general build and appearance of this gecko are very similar to those of the only other species of the genus as restricted, *P. Hasselquisti.** General form rather elongate, body round, head broad and high behind, wedge-shaped in front, the region in front of the eyes slightly concave. Limbs elongate; the fore-limb nearly reaches the thigh when laid back, laid forward it extends beyond the end of the snout: the hind-limb brought forward comes in front of the shoulder. The only perfect specimen measures rather over 7½ inches, head 1 inch, tail from anus 3·4, or rather less than the head and body.

The nostrils are entirely surrounded by swollen scales, usually 3, but sometimes 4 in number, considerably smaller than the anterior labials. Some of these scales separate the nostril from the rostral and labials. Rostral rectangular, its height rather more than half its breadth, which is more

* *Stellio Hasselquisti*, Schneider; *Ptyodactylus Hasselquisti*, Dum. et Bibr. III, p. 378; *P. gecko*, Gray, Cat. Lizards B. M. p. 151. The name employed by Gray is founded on *Lacerta Gecko*, Hasselquist, which however cannot be applied to this species, as it is not the *Lacerta Gecko* of Linnæus.

than double that of the adjoining labials. Upper labials on each side about 15 or 16. Mental pentagonal, narrower than the adjoining lower labials and very much narrower than the rostral; a row of enlarged chin-shields along the lower edges of the anterior lower labials. No enlarged or pointed scales on the upper eyelid. The whole upper surface of the head, body, limbs, and tail is finely and almost uniformly granular. Scales of the abdomen flat, not imbricate, very little larger than those of the back; those of the chin and throat smaller, except near the lower labials; scales beneath the tail irregularly polygonal, considerably larger than those of the abdomen, not arranged in longitudinal rows. Tail not verticillate. Lower surface of limbs and soles of feet covered with small smooth scales, toes with simple cross plates, except at the extremity, where they are expanded into a double disk marked beneath with radiating striæ; claws retractile, minute, but present on all the toes. No femoral or præanal pores.

Colour (noted on living specimens) light brownish grey with broad transverse wavy bands of lighter and darker shades alternating on the back, tail, and limbs. There are about five darker bands on the back: the cross-bands are closer together on the tail. Lower parts white.

A few specimens of this new gecko were brought to me near the Maki Nai in the lower portion of the Khirthar range, which bounds the province of Sind on the west. The locality whence the types were obtained was in the Mehar division of the Shikárpúr district.

This is, so far as I am aware, only the second species of the genus as restricted by Fitzinger, Gray, Wagler, and others, and the first which has been found in Asia. The other species, *P. Hasselquisti*, which is found in Egypt, is distinguished by having enlarged tubercles on the back, and the nostrils in contact with the first upper labials and rostral.

5. Gymnodactylus, sp.

A species of which I obtained four specimens in the hilly country south-west of Sehwan and again in the hills west of Lárkana appears to differ from *G. Kachhensis* (Stoliczka, P. A. S. B., 1872, p. 79) in having larger abdominal scales; there being about 20 instead of about 30 across the abdomen. As I am not sure if this character is constant (for one of my specimens appears to agree with *G. Kachhensis*), I shall not propose a new name.

I have compared the species from Baluchistán, which I called *G. brevipes* (A. M. N. H., June, 1874, XIII, p. 453), with the types of *G. Kachhensis*. They are quite distinct though allied. The former appears much smaller, darker in colour, and differently marked, and one characteristic distinction is that in *G. brevipes* the nostril is in contact with both the rostral and first labial, whilst in *G. Kachhensis*, it meets the rostral only, being

separated from the first labial by an intervening scale. *G. brevipes* is figured in the 'Zoology of Persia,' Pl. XXII, Fig. 2.

6. Stenodactylus orientalis, sp. nov.

S. arenarius, nonnunquam fusco-transfasciatus, dorso tuberculis parvulis irregularibus fuscis ornato, caudâ robustâ, squamis caudalibus æqualibus, in annulos brevissimos ordinatis, digitis ad latera breviter fimbriatis, subtus scutellis tuberculatis indutis; pupillâ verticali.

Hab.—*In Sind in desertis arenosis.*

Description.—General form stout, somewhat depressed; head flat, short, and blunt; tail slightly swollen at the base, thence diminishing regularly, much stouter than in *S. guttatus*, about the same length as the body without the head; limbs stout, the fore-limb laid forward does not quite reach the end of the snout, the hind-limb extends to the axil. The largest specimen obtained measures 3·3 inches, of which the head is 0·5, and the tail from the anus 1·4.

The nostril is situated at the upper outer angle of the rostral, between that shield and three slightly enlarged scales, one of which separates the nasal orifice from the first upper labial. Rostral rectangular, rather higher than the adjoining labials and about twice as broad; it has a deep vertical groove in the middle which disappears on its lower portion. Upper labials about 12, lower labials 10—13, both series becoming much smaller behind and passing into the head-scales. Mental as broad as the rostral, rounded below; no enlarged chin-shields, but the granular scales near the lower labials are a little larger than those of the throat. Upper eyelid well developed, covered with granular scales; lower eyelid wanting. Pupil vertical. Ear-opening a vertical slit, not quite equal to the diameter of the eye in length. Upper surface of the head, body, and limbs finely granular, over the back there are scattered small convex dark coloured tubercles, none on the limbs. Lower parts covered with small granular scales rather flatter than those of the back, but scarcely larger on the abdomen, and smaller on the throat. Toes short and thick, all of them finely fringed with short pointed denticulations, the lower surface with cross plates each divided into several ribs or tubercles. All the toes furnished with nearly straight claws. Tail finely granular throughout, the granules being disposed in rings.

Colour pale sandy, the tail (and, in one specimen, the body) with darker transverse bands; a darker line from the eye down each side. The enlarged tubercles on the back are dark brown. In one specimen the sides of the snout and labials are mottled with dusky markings.

I obtained one specimen of this gecko in the evening on sand-hills in the desert country south of Rohri in upper Sind. Another was brought to

me in the hills west of the Shikárpúr district. It is evidently a nocturnal species and probably burrows in the sand. It does not appear to be common. It closely resembles a species which I described from Baluchistán under the name of *Bunopus tuberculatus*,* but that form wants the denticulated fringe to the toes. A variety of *B. tuberculatus* has the colouration of the present species.

The other described forms of *Stenodactylus* are African† ; *S. guttatus* being found in Egypt, *S. Mauritanicus* in Algeria, and *S. garrulus* in South Africa. Another species has been described under the name of *S. caudicinctus* (A. Dum., Arch. du Mus., VIII, Pl. XVIII, Fig. 15). This last, however, is a very different form, being allied to *Eublepharis*, and Dr. Gray has proposed to make it the type of a distinct genus *Psilodactylus* (P. Z. S., 1864, p. 60). *S. orientalis* is most nearly allied to *S. guttatus*, but it is stouter and has the back tuberculated, and judging from the plate of *S. guttatus* in the 'Description de l'E'gypte' (Supp., Pl. I, Fig. 3) the head in the present species is smaller and the legs much longer, the toes too appear to have a much shorter fringe.

Fam. *AGAMIDÆ*.

7. Agama agilis.

Olivier, Voy. Emp. Othm. Eg. et Perse, II, p. 418, Pl XXIX, Fig. 1.—Dum. et Bibr., Erp. Gén. IV, p. 496.—Gray, Cat. Lizards B. M. p. 257.—Blyth J. A. S. B. 1854, XXIII, p. 737.—Theobald, Cat. Rept. Mus. As. Soc. p. 38.—Anderson, P. Z. S., 1872, p. 384.—W. Blanf., Zool. Persia, p. 314.

? *Trapelus*, sp. Jerdon, P. A. S. B., 1870, p. 78.

Trapelus megalonyx, Stoliczka, P. A. S. B., 1872, p. 88, *nec* Günther.

Very common in the hills to the west of the Indus valley, as it is in Baluchistán. In the open plain outside the hills it is less frequently met with.

I have examined one of the specimens collected by Dr. Day in Sind, and described by Dr. Stoliczka under the name of *Trapelus megalonyx* and I have no doubt of its belonging to the present species. The appearance of enlarged scales on the sides is, I think, to a great extent fallacious, and due to brighter colour. Certainly there are no scales enlarged to the extent which is found in most species of *Trapelus*, and represented in Ford's figure of *T. megalonyx* in Günther's Reptiles.

* Ann. and Mag. Nat. Hist. June 1874, Vol. XIII, p. 454.— 'Zoology of Persia', p. 348, Pl. XXII, Fig. 4.

† In the Catalogue Méthodique des Reptiles du Muséum d'Histoire naturelle de Paris by C. Dumeril (1851) p. 47, specimens of *S. guttatus* are stated to have been brought from Australia by MM. Quoy and Gaimard. The locality requires confirmation.

The only other *Trapelus* recorded from the British possessions in India is one which Dr. Jerdon mentioned his having obtained from the Alpine Panjáb (P. A. S. B., 1870, p. 78). No specific name was applied to this form, in the description of which I find nothing to distinguish it from *Agama agilis*. The fore-leg is said not to reach the hip joint, as it usually does in this species, but I find that it occasionally falls a little short.

This species was obtained by Mr. Theobald in the Salt range of the Panjáb and I find a specimen in the Indian Museum of which the record of the locality has been lost, but which was presented by Mr. Theobald, and is, I think, probably the specimen mentioned in his catalogue and determined by Mr. Blyth.

8. Trapelus rubrigularis, sp. nov.

T. affinis T. ruderato, *sed squamis omnibus lævioribus, meatu auditorio majori, vix superne denticulato, poris præanalibus paucis atque in seriem unicam ordinatis, coloreque distinguendus; supra olivaceofuscus vel griseus, albido guttulatus, maculis nonnullis fuscis distantibus in lineam longitudinalem utrinque ad dorsum notatus, caudâ superne fuscotransfasciatâ, maculâ rubrâ (post mortem apud exempla in spiritu vini conservata evanescente) sub gulâ signatus.*

Hab.—*In Sind.*

Description.—General form very much like that of *Trapelus ruderatus* from Persia.* The head is short and depressed, so much so in young specimens that they have exactly the appearance of *Phrynocephali*, body much depressed, tail depressed at the base, then very gradually diminishing and terminating in rather a blunt point; no nuchal crest; a cross fold on the throat. The fore-leg in adults when laid back does not reach the thigh, the hind-leg laid forward comes to the shoulder, in young specimens to the ear. Length of the largest specimen collected nearly 7 inches, head 1, tail from anus 3·8, fore-limb to end of toes 1·35, fourth toe without the claw (from the division between 3rd and 4th toes) 0·22, hind limb 2, fourth toe 0·37.

Scales on upper surface of the head bluntly keeled, irregular in size, those in the middle of the occiput and forehead being rather larger than the rest. Superciliary ridge prominent; *canthus rostralis* rounded; nostrils directed upward and backward, each in the middle of a single shield on the anterior portion of the snout; the nasals near each other, being separated by about three scales from each other and usually by two from the ros-

* I have already pointed out (Zool. Persia, p. 316) that the Persian form is the true *Agama ruderata* of Olivier and that the Egyptian lizard, although closely allied, appears to be fairly separable, in which case the latter will stand as *T. mutabilis*, Merrem.

tral. Upper labials square, about 30 to 34 in number, rostral very little broader: mental larger than the rostral. Both eyelids fringed with elongate pointed scales, the upper in front and behind only, the lower throughout. Orifice of ear exceeding the nasal shield in size, the upper edge has a few spinose scales in some specimens, but no long fringe covering part of the orifice; tympanum very little sunken.

Scales of the back smooth or very faintly keeled, subimbricate, arranged in oblique rows, and with some much enlarged scales scattered among them; each enlarged scale is about the size of four ordinary scales, it is pale in colour, often forming the centre of a pale spot, and rather bluntly keeled and pointed behind. These enlarged scales occur also on the basal portion of the tail, but not on the limbs. All the tail-scales are keeled except below near the base, the keels forming longitudinal lines throughout the greater portion of the tail; the scales are not arranged in rings. Scales on the limbs subequal, those above keeled, those beneath smooth, except on the feet, where the scales above are smooth, those beneath the feet and toes sharply keeled. Claws moderate; those on the fore feet very little longer than on the hind, none of them half the length of the thumb without its claw. Scales of the abdomen all smooth, rhomboidal, a single row of about 10 to 12 pores just in front of the anus in males. I count about 120 scales round the body.

Colour above, when alive, olive brown of a paler or darker tint, spotted with pale yellow, each spot corresponding to one of the enlarged dorsal scales. A dusky longitudinal line on each side of the back of the neck, and 3 or 4 pairs of blackish spots of irregular shape at a distance along the back. In some specimens the anterior portion of the shoulder is indigo blue. A large red mark with dusky edges is always found below the throat in living individuals of both sexes, it is more or less concealed by the throat fold and it disappears in specimens kept in spirit. Tail marked above with alternating dusky and pale bands equal in width.

This species is distinguished from all others by its colouration, and, when alive, by the presence of a red patch beneath the throat. It may be easily distinguished from *T. ruderatus* by its much smoother surface, and its scales arranged in regular rows, and from *T. megalonyx* by its shorter claws and by there being little, if any, difference in length between those on the fore and hind feet. It is probably more nearly allied to the Egyptian *T. mutabilis*. Compared with the figure in the 'Description de l'E'gypte' (Supp., Pl. I, Fig. 6), it differs in colouration, in the distribution of the enlarged scales and in their not being spinose. In *T. mutabilis* also there are tubercles on the upper surface of the limbs.

I found this new *Trapelus* not very common on the "Pat" or sandy desert and semi-desert along the base of the Khirthar hills in western Sind.

I obtained very few specimens myself, nearly all were brought to me, and almost all procured were young, only two or three being adult.

9. Stellio nuptus.

Agama nupta, De Filippi, Giornale del I. R. Ist. Lomb. Vol VI, (1843) p. 407.

Stellio carinatus, A. Duméril, Cat. Méth. Rept. Mus. Par. p. 107, (1851).—Archives du Muséum, VIII, p. 580.

S. nuptus, De F., Viaggio in Persia, p. 352.—W. Blanf., Zoology of Persia, p. 317, Pl. XIX, Fig. 1.

This is a fine addition to the fauna of Sind and consequently to that of British India. It is a very different *Stellio* from any of the species found in the Himalaya, the whole back being covered with large carinated scales equal in size and forming oblique rows converging posteriorly, whilst there is an abrupt change to the small scales of the sides. The head is very broad with numerous groups of spines around the ear and on the sides and back of the neck.

The form found agrees in structure with the variety which I have called *fusca*, as it has no fold across the back of the neck, but the prevailing colour is pale yellowish brown as in the type. The largest specimen obtained measures nearly 19 inches, of which the tail is $12\frac{1}{2}$.

I found *S. nuptus* rather scarce in the Khirthar range west of Sind but little above the sea level. It is common throughout southern Persia.

10. Stellio melanura.

Laudakia (Plocederma) melanura, Blyth, Jour. As. Soc. Beng. 1854, XXIII, p. 737.

Stellio melanurus, Anderson, P. A. S. B., 1871, p. 189.—Stoliczka, P. A. S. B., 1872, p. 129.

This species occurs abundantly in the Khirthar range forming the frontier between Sind and Kelat. It grows to a length of 17 or 18 inches, the tail when quite perfect being from two to three times the length of the head and body. In a fine male 15·6 inches long, the tail measured 11·3. In a female 12 in. long, the tail was 8·5. The colour varies: in females it is usually olive mottled with dusky spots and streaks on the head and back; males in the spring are usually more or less black, especially on the tail and hinder part of the back; some are jet black throughout the upper parts, and dusky below.

I am very much in doubt as to whether the Baluchistán *S. liratus* (A. and M. N. H., June, 1874, XIII, p. 453, and 'Zoology of Persia', 320, Pl. XX, Fig. 2) should be considered distinct, most of the characters which I thought would serve to separate it being found at times in *S. melanura*. The dorsal scales do appear rather smaller in the latter, there being 10 to 12 of the enlarged rows in the middle of the back instead of 6 or 7, but the fold across the back of the neck is occasionally well developed, and the extent to which the tail-scales near the base are keeled varies in individuals,

and so does the regularity of annulation. Some have the tail scales arranged in verticils, in others this character is obscure or wanting, and it is rarely well marked.

In adult males there is a patch of thickened scales in the middle of the abdomen as in some other forms of *Stellio*.

Fam. *LACERTIDÆ*.

11. Mesalina pardalis.

Lacerta pardalis, Licht., Verzeich. Doubl. p. 99.*
Eremias pardalis, Dum. et Bib., V. p. 312.
Mesalina pardalis, Gray, Cat. Lizards B. M. p. 43.—W. Blanf., Zool. Persia, p. 377.
Eremias (Mesalina) Watsonana, Stoliczka, P. A. S. B., 1872, p. 86.

In the 'Zoology of Persia,' I pointed out that the specimens of this species obtained by me in various parts of Persia, agreed perfectly on the one hand with typical examples from Egypt in the British Museum and on the other hand with Dr. Stoliczka's description of *M. Watsonana*. A typical specimen of the latter is in the Indian Museum, and I find my identification was quite correct, and that this specimen agrees in all respects with *M. pardalis*.

This species is common in the western part of upper Sind, keeping chiefly to open plains and deserts.

12. Acanthodactylus Cantoris.

Common in open sandy places, usually amongst bushes, not in absolute desert.

13. Ophiops Jerdoni.

This is not common in Sind, but I saw several on the top of a high hill, called Miagwan, in the extreme north-western corner of Sind, at an elevation of about 6000 feet above the sea; I also met with a few individuals on the Hab river near Karáchi. Concerning this species see Stoliczka's remarks, J. A. S. B., 1872, XLI, p. 89, and Günther's, P. Z. S., 1875, p. 225. The latter, however, is mistaken in supposing that *Cabrita Jerdoni* is the same species. As was pointed out by Beddome in his original description (Mad. Monthly Jour. Med. Sci. 1870), *C. Jerdoni* differs in having a fully developed lower eyelid, a longer tail, more numerous femoral pores, &c.

* I take this reference from Dumeril and Bibron and from Gray, as I have not access at present to the original work. There is no doubt, so far as I am aware, about the identification, but it is never wise to quote any authority without referring to it, and I only do so in this case because the species has not before been recognized as Indian.

Shaik Khalilludín Ahmad Del:

S. Sedgfield Lith.

1. TRAPELUS RUBRIGULARIS. 2. STENODACTYLUS ORIENTALIS.

Shaik Khalíluddín Ahmad Del.

S. Sedgfield Lith:

PTYODACTYLUS HOMOLEPIS.